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5 Abstract of the Disclosure

6 An optical disk reader or read/write system for CD or DVD
7 formats. First and second laser diodes operating at different
8 wavelengths have their output beams collimated and directed at a
9 single element objective lens, and are then reflected off the
10 disk back through the lens to a photodetector. The single
11 element objective lens has a central aperture zone and an outer
12 aperture zone, the central zone being profiled to operate at a
13 first numerical aperture at approximately 0.45 and the output
14 beam of the first laser diode is confined to the central aperture
15 zone. The outer aperture zone together with the central aperture
16 zone are profiled to operate at a second numerical aperture, for
17 example 0.60 wherein the output beam of the second laser diode
18 has ray fans extending across the full aperture of the single
19 element objective lens. A diffractive is formed on one surface
20 of the single element objective lens and provides sufficient
21 aspheric surface power for spherical aberration correction as
22 well as correction for spherochromatism. The diffractive also
23 provides sufficient correction for spherical aberration and
24 spherochromatism that the single element objective lens achieves
25 diffraction-limited image quality for both CD and DVD formats.

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